Saginaw Hill Background and History

The BLM is conducting investigations to support a **non-time-critical removal action** in accordance with the **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)**. The areas of concern at the Saginaw Hill site are two abandoned mines, the Saginaw Mine and the Palo Verde Mine.

View from the top of Saginaw Hill looking northwest to Saginaw Mine

The site investigations will be conducted to characterize the source, nature, and extent of contamination associated with the abandoned mines. Information obtained by the site investigations will enable BLM to evaluate removal action alternatives to minimize or eliminate the potential release of any site contaminants that would present a risk to human health and the environment.

The purpose of this website is to ensure that members of the local community are informed about the progress of investigations at the site and are notified of opportunities to provide input into the selection of a removal action alternative for the site.

Saginaw Hill is located on a 540-acre parcel of BLM land, approximately 10 miles southwest of the City of Tucson in Pima County, Arizona. The site is at an elevation of 2,600 feet above sea level and is surrounded by steep hills that form the southern edge of the Tucson Mountains.

Sulfide mining and **smelting** occurred at the site from the late 1800s through the mid-1900s in the area of the Saginaw Mine and the Palo Verde Mine.

Base metal sulfides were mined and used as smelter **flux** to process precious metal ore brought in from outside the area. The mine tailings, waste rock, and **slag** left over from mining and processing the ore present a concern for human health and the environment, primarily as a source of metal contamination. Because of the complex nature of the groundwater in this area, it is not known whether the contaminants have leached into the groundwater.

Fifteen mining claims are still maintained at the site, but active mining has not occurred for more than 50 years. The site is surrounded by privately owned land, including residential developments to the east and north. Harriet Johnson Elementary School, part of the Tucson Unified School District, is adjacent to the site on the east. The Pascua Yaqui Reservation is adjacent to the site on the south.

Panoramic view of the Saginaw Mine toward the west

In 1988, BLM designated the 540-acre property for disposal. Pima County expressed interest at that time in the property and began development of the Saginaw Hill Regional Park Master Plan through the engineering firm WLB Group, Inc. During the development of the Master Plan, a preliminary environmental review of the Saginaw site was conducted. The purpose of the review was to determine the potential hazards at the site, based on a walkover and limited sampling.

GRC Consultants, Inc., the firm hired to conduct the environmental review, identified open mine areas, two large mine tailing piles with odors, a smelter slag pile, and piles of household and construction debris (household appliances, abandoned vehicles, carpet remnants, roofing materials, etc.). Some of the mine portals also appeared to be filled with various forms of refuse and debris.
Limited soil sampling near the mine tailing piles and downslope from the slag pile indicated high concentrations of aluminum, cadmium, copper, lead and zinc. Further investigations were recommended.

In 1989, GRC Consultants, Inc. conducted a Phase I and Phase II Environmental Site Assessment of the Saginaw Hill Regional Park site. The Phase I Environmental Site Assessment confirmed the findings of the preliminary environmental review and recommended more extensive soil sampling for heavy metals. Soil sampling conducted under the Phase II Environmental Site Assessment indicated high levels of barium, cadmium, lead, and arsenic. Contamination appeared to be limited to the general vicinity of the tailings piles and slag embankment area. A detailed groundwater investigation was recommended to determine whether heavy metals had migrated to the groundwater, especially as a result of the open mine shafts. Without clear authority to apply CERCLA, further investigations at the Saginaw Hill site were dormant following the Phase II Environmental Site Assessment.

During the 1990s, the federal land management agencies began a concerted effort to establish an inventory of abandoned mines and to characterize and prioritize sites according to the physical and environmental hazards. BLM, in conjunction with the Arizona State Mine Inspector’s Office, has been able to inventory approximately 35% of its public lands in Arizona, estimating that as many as 27,000 abandoned mine features are present. Many of these mine features consist of relatively insignificant features such as shallow trenches and small exploration pits, while others pose physical and environmental hazards, which will require some form of remediation or closure. Because of the vast number of abandoned mine sites, the BLM has prioritized cleanup on those lands around population centers or areas where there is a high potential for recreational use. This work is being conducted under BLM’s Abandoned Mine Lands Clean Up Program in accordance with CERCLA.

In 2001, Pima County renewed its interest in the property, and submitted an application to acquire the 540-acre parcel under the Recreation and Public Purposes Act for use as a regional urban trails park. However, the land transfer can not occur without remediation of the abandoned mine sites.

In 2003, BLM conducted a Preliminary Assessment of the Saginaw Hill site . The purpose of this assessment was to determine if a release of hazardous substances has occurred at the site. Levels of lead, arsenic, zinc, copper, and cadium were found in high concentrations around the tailings piles. Levels of arsenic and lead exceed the Arizona Department of Environmental Quality Soil Remediation Levels for non-residential soil. Although several domestic water wells occur between 0.5 and 1 mile from the areas of contamination, these wells are between 200 and 500 feet deep and are located outside the local drainage basin. The hydrology of the area will need to be investigated further to determine if any of the metals have leached into the groundwater.

In September 2004, BLM contracted with an environmental firm, Ecology & Environment, Inc., to conduct further site investigations to support selection of a removal action alternative for areas of contamination. The removal action would be performed to minimize or eliminate the potential release of any site constituents that would present a risk to human health and the environment. A removal action may include a number of actions to minimize or eliminate the potential for release, including excavation and removal, containment, or stabilization.